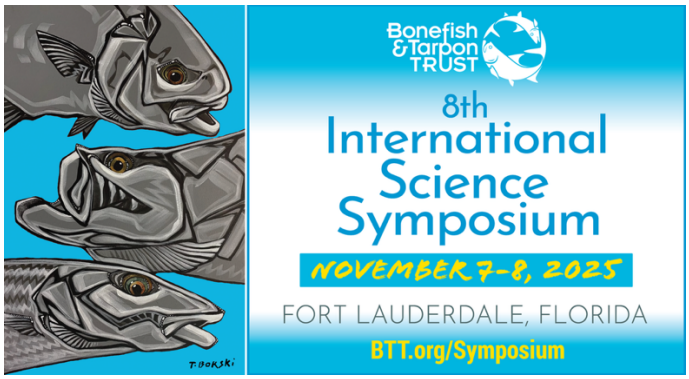


Socio-ecological characterization and trends of the flats fishery in Ascension and Espiritu San Bays, Sian Ka'an Biosphere Reserve, Quintana Roo, Mexico

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Characterizing the status and trends of socio-ecological coastal activities are important for improved decision-making in conservation and management. We used the flats fishery in Sian Ka'an, Quintana Roo, a UNESCO World Heritage Site, as focus model to 1) identify and build a typology of users, 2) trends of changes in resource and ecosystems, 3) conflict detection and analysis, 4) strategies and recommendations to enhance local management. We applied a mixed methods approach that included local knowledge, qualitative interviews (n=35), and participatory mapping with tour-operators and artisanal and recreational fishers in three communities. Overall, we found important socio-ecological challenges to the sustainability of artisanal subsistence and commercial fisheries, recreational fisheries and nature-based guided tourism. These challenges are linked to various ecosystem changes related to environmental factors, declining fishery resources, social dynamics and local governance. Key findings indicate ecological degradation (loss of seagrasses and mangroves, sargassum accumulation, salinity changes) affecting services of users highly dependent on ecosystem healthy. Additionally, social and activity dynamics exert socio-economic pressures on resource use resulting in overlapping tourism and fishing activities. Finally, the lack of information, stakeholder involvement and capacities in management have intensified governance challenges that result from inadequate regulation and lack of zoning. Considering the findings, improving local management requires actionable guidelines that integrate capacity building, monitoring, and adaptive governance.